

WE CLAIM:

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1. In a common rail injector for injecting fuel in a common rail injection system of an internal combustion engine, having an injector housing (1) which communicates with a central high-pressure reservoir and in which a nozzle needle (14) that cooperates with a valve piston (6) which is guided in a valve piece (2) is axially displaceable, the improvement wherein the end of the nozzle needle (14) toward the valve piston (6) protrudes into a guide sleeve (16), in which the end of the valve piston (6), or of a thrust rod (8) triggered by the valve piston (6), oriented toward the nozzle needle (14) is received.

2. The common rail injector according to claim 1, wherein in the end of the nozzle needle (14) toward the valve piston (6), a blind bore is embodied centrally, the end of the valve piston (6), or of the thrust rod (8), oriented toward the nozzle needle (14) being received in said bore.

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3. The common rail injector according to claim 1, wherein the valve piston (6) or thrust rod (8) and the guide sleeve (16) form a unit, and wherein a blind bore is formed centrally in the end of either the valve piston (6) or of the thrust rod (8) toward the nozzle needle, the end of the nozzle needle (14) toward the valve piston being received in said blind bore.

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4. The common rail injector according to claim 1, wherein on the end of the nozzle needle (14) toward the valve piston (6), a thrust peg (15) is embodied, said thrust peg protruding into the guide sleeve (16) or into a central blind bore formed on the end of the valve piston (6) or on the end of the thrust rod (8) toward the nozzle needle.

5. The common rail injector according to claim 1, further comprising a bearing disk on the face end of the guide sleeve (16) remote from the nozzle needle (14) between the guide sleeve (16) and a nozzle spring (18), said bearing disk forming an abutment for the nozzle spring (18).

6. The common rail injector according to claim 1, further comprising a collar on the guide sleeve (16), on its face end remote from the nozzle needle (14), said collar (28) forming an abutment for the nozzle spring (18).

7. The common rail injector according to claim 1, wherein the dimensions of the guide sleeve (16), on its face end remote from the nozzle needle (14), are adapted to the dimensions of the nozzle spring (18).

8. The common rail injector according to claim 4, further comprising a cylindrical recess (22) formed on said guide sleeve (16), on its face end toward the nozzle needle (14).

9. The common rail injector according to claim 1, further comprising an adjusting piece (19) disposed between the nozzle needle (14) and either the valve piston (6) or the thrust rod (8).
10. The common rail injector according to claim 1, further comprising a thrust rod (8) cooperating axially with said valve piston (6), said thrust rod (8) being disposed so as to be slightly pivotable relative to the longitudinal axis of the valve piston (6).
11. The common rail injector according to claim 10, further comprising a blind bore (7), in the end of the valve piston (6) toward the nozzle needle (14), said blind bore (7) receiving a tapering end of the thrust rod (8).
12. The common rail injector according to claim 1, wherein the end of the valve piston (6) toward the nozzle needle (14) can be deflected elastically in the radial direction out of the axis of symmetry of the valve piston (6).
13. The common rail injector according to claim 3, wherein on the end of the nozzle needle (14) toward the valve piston (6), a thrust peg (15) is embodied, said thrust peg protruding into the guide sleeve (16) or into a central blind bore formed on the end of the valve piston (6) or on the end of the thrust rod (8) toward the nozzle needle.

14. The common rail injector according to claim 2, further comprising a bearing disk on the face end of the guide sleeve (16) remote from the nozzle needle (14) between the guide sleeve (16) and a nozzle spring (18), said bearing disk forming an abutment for the nozzle spring (18).

15. The common rail injector according to claim 4, further comprising a bearing disk on the face end of the guide sleeve (16) remote from the nozzle needle (14) between the guide sleeve (16) and a nozzle spring (18), said bearing disk forming an abutment for the nozzle spring (18).

16. The common rail injector according to claim 2, further comprising a collar on the guide sleeve (16), on its face end remote from the nozzle needle (14), said collar (28) forming an abutment for the nozzle spring (18).

17. The common rail injector according to claim 4, further comprising on the guide sleeve (16), on its face end remote from the nozzle needle (14), said collar (28) forming an abutment for the nozzle spring (18).

18. The common rail injector according to claim 2, wherein the dimensions of the guide sleeve (16), on its face end remote from the nozzle needle (14), are adapted to the dimensions of the nozzle spring (18).

19. The common rail injector according to claim 4, wherein the dimensions of the guide sleeve (16), on its face end remote from the nozzle needle (14), are adapted to the dimensions of the nozzle spring (18).

20. The common rail injector according to claim 5, further comprising a cylindrical recess (22) formed on said guide sleeve (16), on its face end toward the nozzle needle (14).

21. The common rail injector according to claim 6, further comprising a cylindrical recess (22) formed on said guide sleeve (16), on its face end toward the nozzle needle (14).

22. The common rail injector according to claim 4, further comprising a cylindrical recess (22) formed on said guide sleeve (16), on its face end toward the nozzle needle (14).

23. The common rail injector according to claim 2, further comprising an adjusting piece (19) disposed between the nozzle needle (14) and either the valve piston (6) or the thrust rod (8).

24. The common rail injector according to claim 4, further comprising an adjusting piece (19) disposed between the nozzle needle (14) and either the valve piston (6) or the thrust rod (8).

25. The common rail injector according to claim 5, further comprising an adjusting piece (19) disposed between the nozzle needle (14) and either the valve piston (6) or the thrust rod (8).

26. The common rail injector according to claim 2, further comprising a thrust rod (8) cooperating axially with said valve piston (6), said thrust rod (8) being disposed so as to be slightly pivotable relative to the longitudinal axis of the valve piston (6).

27. The common rail injector according to claim 3, further comprising a thrust rod (8) cooperating axially with said valve piston (6), said thrust rod (8) being disposed so as to be slightly pivotable relative to the longitudinal axis of the valve piston (6).

28. The common rail injector according to claim 7, further comprising a thrust rod (8) cooperating axially with said valve piston (6), said thrust rod (8) being disposed so as to be slightly pivotable relative to the longitudinal axis of the valve piston (6).

29. The common rail injector according to claim 2, further comprising a blind bore (7), in the end of the valve piston (6) toward the nozzle needle (14), said blind bore (7) receiving a tapering end of the thrust rod (8).

30. The common rail injector according to claim 2, wherein the end of the valve piston (6) toward the nozzle needle (14) can be deflected elastically in the radial direction out of the axis of symmetry of the valve piston (6).

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